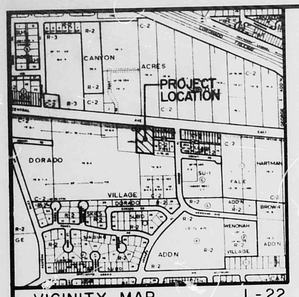
HYDROLOGY L22/D17a RUSTCO SUPPLY

L22/D17a

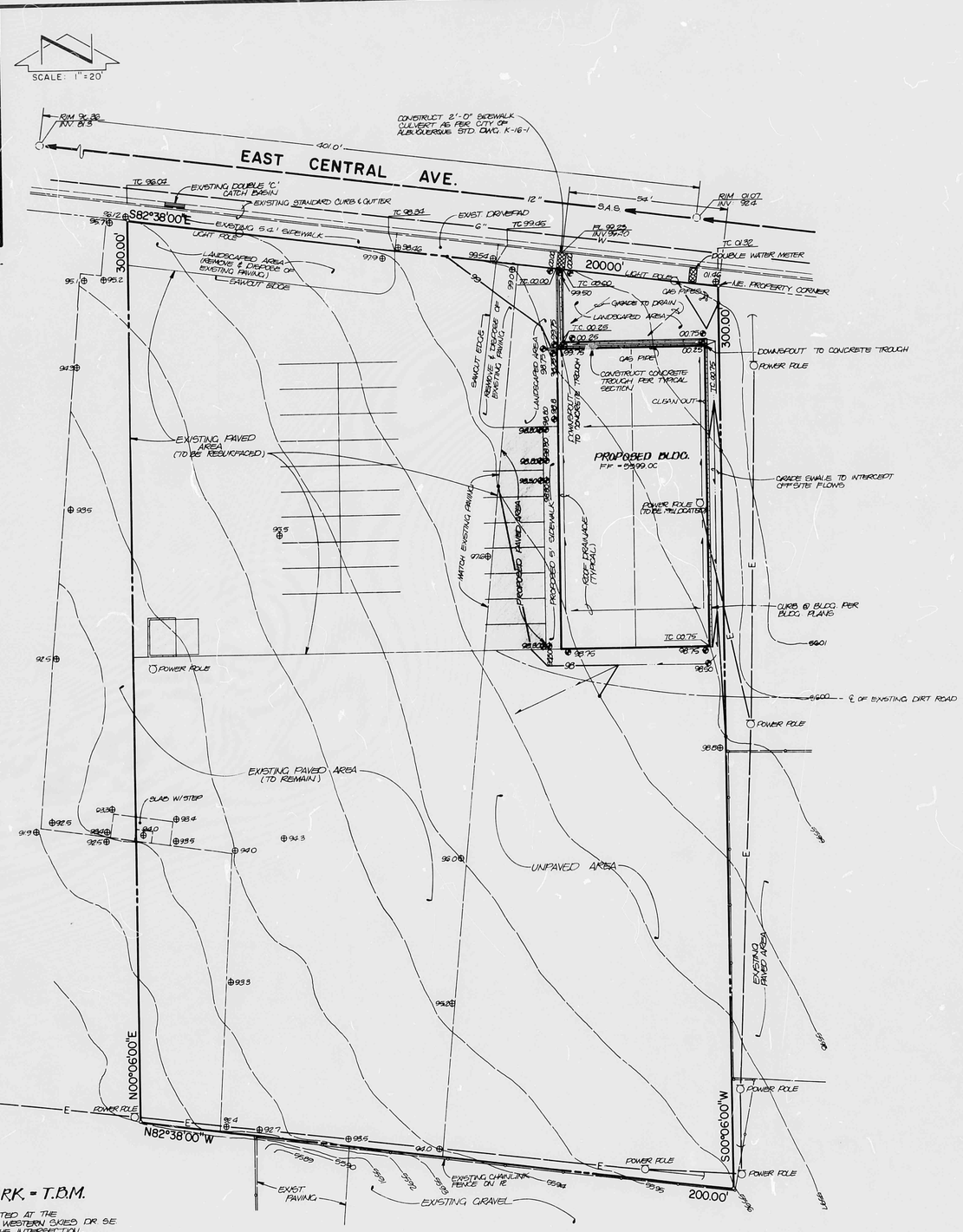
Rustco Supply

1 Plan



VICINITY MAP L-22

SCALE: 1" = 800'



LEGEND

- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- 5500 EXISTING CONTOUR
- 98 PROPOSED CONTOUR
- PROPOSED CONCRETE
- PROPOSED ASPHALT
- MANHOLE

PROJECT BENCHMARK - T.B.M.

A.C.S. BENCHMARK N.M. BER 4 LOCATED AT THE INTERSECTION OF CENTRAL AVE AND WESTERN SKIES DR. S.E. IN THE SOUTHEAST QUADRANT OF THE INTERSECTION, 105' SOUTH OF THE ℄ OF CENTRAL AVE AND 60' EAST OF THE ℄ OF WESTERN SKIES DR. S.E. THE STATION MARK IS A STANDARD U.S.G.S. BRASS TABLET STAMPED "N.M. Ber. 4, 1954 El 5560," SET IN TOP OF A CONCRETE POST PROJECTING 0.4 FT.
ELEVATION = 5560.149 FEET (M.S.L.D.).

DRAINAGE PLAN

The following items concerning the Rustco Supply Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located on the south side of East Central Avenue between Western Skies Drive S.E. and Dorado Place S.E. At present, the site is partially developed. Several of the surrounding parcels are also developed.

As shown by Plate L-22 of the Albuquerque Master Drainage Study, the site does not lie within a designated Flood Hazard Zone. Further study of this plate reveals that downstream flooding does exist at the intersection of Central Avenue and Western Skies Drive S.E. As indicated by the Grading Plan, there is an existing storm drain system in East Central Avenue. Lastly, there is a slight ridge line just east of the east property line of the site which makes the offsite flows in the vicinity of the proposed building negligible. This is to say that the flows are expected to be 1 cfs or less of sheet flow.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1' 0" intervals, 2) continuity between existing and proposed elevations, 3) the limit and character of the existing improvements, and 4) the limit and character of the proposed improvements. As shown by this plan, the proposed improvements consist of the construction of a proposed building, a small amount of asphalt paving, the removal and disposal of some of the existing asphalt paving, and the creation of several landscaped areas. At present, the site drains from northeast to southwest and discharges its runoff onto private property at the southwest corner of the site. This discharge is not a concentrated discharge, but rather is sheet flow. The proposed construction will not alter this trend with the exception of the fact that the runoff generated by the proposed building, along with that small landscaped area situated due north of the proposed building, will be routed via a concrete trough to Central Avenue. As previously mentioned, there is an existing storm drain in Central Avenue. In fact, there is an existing double "C" catch basin adjacent to the northwest corner of the property.

The Calculations which appear below analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. As shown by these calculations, the proposed improvements will result in a slight decrease in the runoff discharged from the site to the south. This, of course, will result in a slight increase in the runoff discharged to Central Avenue. This pattern of runoff is consistent with the pre-design conference re-cap which accompanies this submittal.

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 765-1234, FOR LOCATION OF EXISTING UTILITIES.

2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.

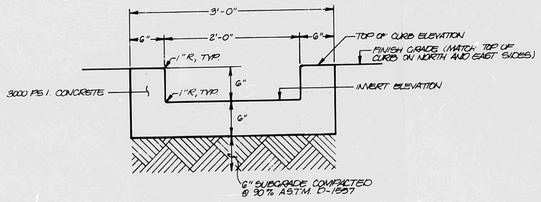
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.

4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING.

2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.



CONCRETE TROUGH SECTION

SCALE: 1" = 1'

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 32:
TgB - Tijeras gravelly fine sandy loam
Hydrologic Soil Group B

Rational Method

Discharge: $Q = CiA$

where C varies
$i = P_6(6.84)T_c^{-0.51} = 5.28$ in/hr
$P_6 = 2.5$ in (DPM Plate 22.2 D-1)
$T_c = 10$ min (minimum)
A = area, acres

Volume: $V = CP_6A(1/12)$

where C varies
$P_6 = 2.5$ in (DPM Plate 22.2 D-1)
A = area, sf

Existing Condition (Discharge to South)

$A_{total} = 60{,}000$ sf $= 1.38$ Ac
$A_{imp} = 30{,}110$ sf; % impervious = 50%
'C' = 0.58 (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.58(5.28)(1.38) = 4.2$ cfs
$V_{100} = CP_6A = 0.58(2.5/12)(60{,}000) = 7250$ cf

Developed Condition

1. Discharge to Central

$A_{total} = 6200$ sf $= 0.14$ Ac
$A_{imp} = 5000$ sf; % impervious = 81%
'C' = 0.77 (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.77(5.28)(0.14) = 0.6$ cfs
$V_{100} = CP_6A = 0.77(2.5/12)(6200) = 995$ cf

2. Discharge to South

$A_{total} = 53{,}800$ sf $= 1.24$ Ac
$A_{imp} = 28{,}330$ sf; % impervious = 53%
'C' = 0.59 (DPM Plate 22.2 C-1)
$Q_{100} = 0.59(5.28)(1.24) = 3.9$ cfs
$V_{100} = 0.59(2.5/12)(53{,}800) = 6610$ cf

Hydraulic Analysis

$Q = (1.49/n)\ A\ R^{2/3}s^{1/2}$ (Manning Equation)

w = bottom width = 2'
s = slope = 0.01
n = roughness coefficient = 0.015 (concrete)
M = side slope = 0 (vertical)
d = depth = 0.5'

$Q_{capacity} = 4.8$ cfs

@ Q = 0.6 cfs, d = 0.16'

Comparison

1. Discharge to Central

$\Delta Q_{100} = 0.6$ cfs (increase)
$\Delta V_{100} = 995$ cf (increase)

2. Discharge to South

$\Delta Q_{100} = 4.2 - 3.9 = 0.3$ cfs (decrease)
$\Delta V_{100} = 7250 - 6610 = 140$ cf (decrease)

Approved 4/8/84

RECEIVED MAR 22 1984 HYDROLOGY SECTION

REGISTERED PROFESSIONAL ENGINEER STATE OF NEW MEXICO THOMAS T. MANN JR. 3/22/84 LAND SURVEYOR

tom mann associates, inc.
811 DALLAS, N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS

NO.	DATE	BY	REVISIONS

DESIGNED BY: J.G.M.
DRAWN BY: L.B.D.
APPROVED: T.T.M.

JOB NO. 40071
DATE 3-84

GRADING & DRAINAGE PLAN
RUSTCO SUPPLY

FILE NO.
SHEET 1 OF 1

L22/D17A